Abstract

Regulation of the expression of MHC class I molecules and other immunoactive molecules on tumor cells

The aim of this master thesis project was to characterize the effects of IFNγ, TNFα and of the epigenetic agents 5-azacytidine (5AC) and 5-aza-2´-deoxycytidine (5AZAD) on the expression of molecules important for antigen presentation and modulation of the immune responses against tumors (MHC class I molecules and other immunoactive molecules CD54, CD80, B7-H1, B7-H2 and CD1d) on tumor cells. The experimental model used for this purpose were the HPV16-associated murine tumor cell lines, either MHC class I positive or negative. The goal was to determine the changes in surface expression of these molecules after treatment by FACS studies and also the expression at the mRNA level using qPCR. Expression of these proteins was also compared in the experiments *in vitro* on tumor cell lines and *ex vivo* on tumor cells explanted from animals. The most interesting result is the observation that 5AZAD increases the expression of B7-H1 which inhibits T cell mediated immune response and that 5AZAD and IFNγ act synergistically in the induction of the expression of MHC class I, CD54 and B7-H1 molecules.

Klíčová slova: imunoeditace, protinádorová imunita, HVP16, MHC glykoproteiny I. třídy, B7-H1, IFNγ, TNFα, epigenetické modifikace

Key words: immunoediting, antitumor immunity, HVP16, MHC class I glycoproteins, B7-H1, IFNγ, TNFα, epigenetic modifications